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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/471-520 12/23/99 PAPATHOMAS

EN995064BV

005409

IM62/0214

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EXAMINER

BERMAN, S

ART UNIT

PAPER NUMBER

1711

DATE MAILED:

02/14/01

Please find below and/or attached an Office communication concerning this application proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/471,520

Applicant(s)

PAPATHOMAS ET AL.

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Gelorme et al (5,464,726). Gelorme et al disclose a cyanate ester compositions comprising a cationically polymerizable cyanate ester monomer or oligomer, a modifier, a filler, and a photoinitiator. See column 2, lines 29-52, column 3, lines 38-50, column 7, lines 13-43, column 8, lines 11-21, column 13, lines 50-68, and column 14, lines 48-50. Gelorme et al teach using iron arene photoinitiators, which meet the requirement for an organometallic complex salt having a metal cation. Gelorme et al teach modifiers (column 8) which correspond to those disclosed in the instant specification on pages 26-28. With respect to the functional language in the instant claims, it is the examiner's position that since the same fillers and modifiers are disclosed by Gelorme et al as are disclosed in the instant specification, the fillers and modifiers disclosed by Gelorme et al would inherently provide the same function. With respect to claim 6, Gelorme et al teach that solvents can be included when desired, therefore, solvents are not required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayano et al (4,383,903). See the Abstract, columns 3-7, column 10, lines 20-23, and lines 44-47. Ayano et al disclose compositions comprising organo metal salts as heat curing catalysts. It would have been obvious to one skilled in the art at the time of the invention to employ the organo metal catalysts as photoinitiators because it is well known in the art that the organo metal catalysts disclosed are activated upon photolysis as well as upon heating to provide photocurable compositions.

Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakob et al (4,116,946). Jakob et al disclose compositions comprising cyanate esters, olefinically unsaturated monomers and a hardening catalyst, such as an organic metal compound. Fillers and reinforcing agents can be added (column 5, lines 22-29).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaku et al (4,533,727) in view of McCormick et al (5,215,860). Gaku et al disclose cyanate ester compositions comprising photocrosslinking monomers, thermosetting monomers and/or thermoplastic resins (columns 6-7). Fillers and reinforcing agents may be added (column 8). Photoinitiators, including diphenyl iodonium, and heat curing catalysts are taught in columns 5-6 but do not include organometallic photoinitiators. McCormick et al, in analogous art, teach that an organometallic compound curing agent can be used in an "energy-curable" cyanate composition. McCormick et al teach that organometallic compounds provide curing, including radiation curing, at lower temperatures or faster rates than previous catalysts, allow easier coating, provide temperature control and can be used to provide 100% reactive compositions (column 2, line 61, to column 3, line 20).

It would have been obvious to one skilled in the art at the time of the invention to employ organometallic catalysts and radiation curing, as taught by McCormick et al, with the compositions

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disclosed by Gaku et al. Gaku et al provide motivation by teaching that photoinitiators and radiation curing can be used. McCormick et al teach the advantages of the organometallic salt photoinitiators for curing cyanate ester compositions.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimp (4,709,008) discloses cyanate ester compositions which can be cured by heat and comprise catalysts such as zinc octanoate, etc. (column 3, lines 42-64). Additives taught include thermoplastic resin tougheners, reinforcing fibers, colloidal silica, mineral fillers and pigments (column 4, lines 27-32). Shimp et al, in the article "Cyanate Ester-Cured Epoxy Resin Structural Composites", teach curing cyanate ester-epoxy compositions using metal coordination catalysts (page 298). Christie et al (5,250,848) disclose solder interconnection using a compositions containing cycloaliphatic polyepoxide and/or a cyanate ester, catalysts, such as metal carboxylates and metal chelates, and a filler, such as amorphous silica.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Berman whose telephone number is (703) 308-0040.

The fax number for this group is (703) 872-9310 or, for submissions after Final Rejection, (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application should be directed to the Customer Service telephone number (703) 306-5665.



Susan Berman
Primary Examiner
Art Unit 1711

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2/9/01